Did You Know You’ve Already Spoken with Loquendo?

...when calling your bank...in the subway station...in your car...

Announcements
e-Learning
Home Automation
Assistive & Healthcare
Carriers
Contact Centers
Avatars
Transportation
e-book readers
Insurance
Talking ATMs
Automotive & Navigation
Mobile Smartphones
Tourism
Kiosks
Public Administration
Talking Web
Banking
IVR
MIDs
Loquendo

We Speak. We Listen. We Understand.

www.loquendo.com
Loquendo

Multi-award winning global speech technology leader Loquendo provides all the solutions required for creating next generation speech-enabled applications.

The challenge of meeting the needs of a rapidly changing market requires great flexibility. Loquendo’s outstanding technologies - Loquendo TTS (Text To Speech), Loquendo ASR (Automatic Speech Recognition), Loquendo Speaker Verification, the Loquendo MRCP Server and the VoxNauta VoiceXML and CCXML Platform - enable integrators to rapidly and easily create best-in-breed solutions in all the most widely spoken languages.

Loquendo TTS and ASR are also available in Embedded versions for mobile and embedded devices.

Loquendo is a Telecom Italia company headquartered in Italy with offices in the USA, Spain, Germany and France, and a worldwide network of partners.

Benefits to You

» Loquendo’s multilingual portfolio of products provides integrators with the flexibility to operate in many different countries, so giving their clients expanded reach in today’s global marketplace.

» Available as single technology components as well as complete platforms, Loquendo products have been designed for easy and rapid integration with minimal technological fuss. Whether for telephony servers, desktop PCs, or navigation and handheld devices, Loquendo technologies deliver superior speech services to perfectly fit clients’ requirements.

» Loquendo is the only speech technology vendor that provides a complete product line guaranteeing the same wide range of languages and the same core engine – enabling a seamless and homogeneous multiplatform offer regardless of hardware and software diversity (from server to mobile device).

» The Company has a strong tradition of commitment and leadership in the field of standardization, providing high quality solutions based on all the relevant speech standards (VoiceXML 2.0 and 2.1, CCXML 1.0, MRCP v1 and v2, SRGS 1.0, SISR 1.0 and SSML 1.0), future-proofing customer investments and so greatly cutting costs.

» Loquendo’s dynamic approach allows it to keep pace with a quickly evolving market, while at the same time bringing the company closer to its clients. Loquendo’s continual and intensive research and development programme for creating new technologies enables it to create and evolve an extensive portfolio of products.

Your speech technology partner

Loquendo is a leading technology partner in all areas of speech, including telephony, multimedia and embedded markets. Integrators can expand their businesses and increase profitability by providing their customers the highest quality, speech-based services exploiting Loquendo technology.

Many enterprises and carriers worldwide have recognized the Loquendo difference, automating applications in every sector: e-banking, on line customer care services, talking web pages, call center applications, and information services for news, weather, traffic info, emails and much more.

Loquendo technology has been integrated into a vast range of products: portable and in-car navigation devices, software for the differently able, e-learning, computer games, talking text messages, voice-controlled domestic appliances, etc, and the choice of devices enabled with Loquendo speech is continually expanding.

For more information on how to give voice to your business, and to hear demos of all the Loquendo voices, go to www.loquendo.com
Loquendo products
Loquendo enables the development of any kind of flexible speech-enabled service.

The product portfolio includes:

- Loquendo TTS (Text-To-Speech) – for Telephony, Desktop Multimedia, Automotive and Embedded devices.
- Loquendo ASR (Automatic Speech Recognition) – for Telephony, Desktop Multimedia, Automotive and Embedded devices.
- Loquendo Speaker Verification
- Loquendo MRCP Server
- Loquendo VoxNauta Platform

Currently available languages include:

- Australian English
- US English
- UK English
- Canadian French
- French
- American Spanish
- Colombian Spanish
- Argentinian Spanish
- Chilean Spanish
- Mexican Spanish
- Castilian Spanish
- Catalan
- Valencian
- Galician
- Brazilian Portuguese
- Portuguese
- Italian
- Dutch
- German
- Danish
- Swedish
- Norwegian
- Finnish
- Polish
- Russian
- Greek
- Turkish
- Arabic
- Mandarin Chinese (TTS only)

Under development:

- Romanian
- Japanese
- Indian English
- Basque

in both male and female voices, with many more under development.
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Loquendo - Munich
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80797 Munich - Germany
tel. +49 89 5908 1423 - fax +49 89 5908 1200

Loquendo - USA
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New York, NY 10151
tel. +1 212 310 9075 - fax +1 212 3109001

info@loquendo.com

www.loquendo.com
Loquendo MRCP Server is an optimized client-server solution for the large-scale deployment of speech technologies in the telephony field, such as call centres, CRM, news and email-reading, self-service applications, etc.

Loquendo MRCP Server enables you to exploit the entire range of Loquendo speech technologies.

It is the ideal solution for System Integrators looking for high-quality multilingual speech technologies, and willing to boost the performance of existing IVR services using speech.

Simple yet Complete
Loquendo MRCP Server exploits all the benefits of Loquendo’s renowned high-quality Speech Technologies: Loquendo’s lifelike TTS (Text-To-Speech) and robust speaker-independent ASR (Automatic Speech Recognition).

The client-server architecture allows speech resources to be hosted on a dedicated server, removing any impact on the customer’s equipment.

Integrators do not need technological expertise, and draw the full benefits of Loquendo’s high-performance technologies using standard protocols and languages.

Easy-to-integrate
Loquendo MRCP Server is a server integrated through the widely adopted standard IETF protocol MRCP (Media Resource Control Protocol). Both MRCP versions are supported: MRCP v1 (RFC 4463) which is based on RTSP/RTP and today widely used in the industry, and MRCP v2 which is the new IETF protocol, based on SIP/RTP and offering the new audio recording and Speaker Verification functionalities.

Leveraging these protocols, Loquendo speech technologies can easily interact with a very large number of platforms, IVRs and speech solutions.

Loquendo technologies offer advanced features that, even if not directly covered by the MRCP protocols, enable the MRCP client with which the LMS is connected to make use of additional capabilities that can be extremely useful (invoked by means of the ‘vendor specific’ activation parameters covered by both MRCP protocols).

Loquendo MRCP Server is fully configurable and makes software components status available to both its onboard Management Console and external Management Systems through the SNMP protocol.

Flexible and Modular
Its modular architecture leaves Loquendo MRCP Server independent from ASR/TTS engines and language/voice packages, allowing the seamless upgrade to new technology releases, new languages and voices. The choice of Loquendo MRCP Server opens up a whole new world of possibilities to develop and extend your solutions.

For instance:
• Add voice-enabled services to DTMF-based IVRs, even in complex recognition contexts involving large grammars.
• Use high-quality, flexible TTS prompts to exploit all the unique features of Loquendo TTS (mixed-language, expressive cues, audio mixer etc).
• Expand your service into a multilingual one.
• Move from a single server to a multi-server solution according to the complexity of your application.

Full Standard Compliance
Thanks to its complete support of all the relevant speech IETF and W3C standards, Loquendo MRCP Server provides speech technologies to VoiceXML 2.0 and 2.1 compliant applications:
• ASR – the W3C SRGS 1.0 (Speech Recognition Grammar Specification) grammar formats in both XML and ABNF (Augmented Backus-Naur Form) formats, and also complete support of SISR 1.0 (Semantic Interpretation for Speech Recognition).
• DTMF – even DTMF applications can take advantage of the SRGS 1.0 and SISR 1.0 standards, so that a voice/DTMF application can be given uniform results from voice and DTMF interactions.
• TTS – the W3C SSML (Speech Synthesis Markup Language) is the standard for enhancing text-to-speech rendering and for accessing the many unique features of Loquendo TTS.
The Benefits to You…

Give your users the best available TTS technology for IVR (banking, government…), live news, accessing business documents, e-learning, entertainment, automotive telematics, email reading and any embedded application - there are no limits!

Loquendo’s truly lifelike TTS means there’s no need for costly, time-consuming pre-recording, and it enables the rapid deployment of vocal services that customers will love using.

Loquendo’s voices are expressive, clear, natural and fluent: they have been enriched with a repertoire of “expressive cues” that allow for highly emotional pronunciation.

Two ways for creating your own audio files are available:

- **Loquendo TTS Director** – a complete development environment for creating your own voice prompts, tuning them and saving customizations.
- **Loquendo TTS Voice Experience** – designed in a games console style, this is a highly interactive and user-friendly environment in which voice parameters can be easily and rapidly adjusted.

With all this at your disposal, you can get Loquendo TTS voices talking just the way you want them to!

A World of Languages & Voices…

Loquendo gives its customers expanded reach in today’s global marketplace. Loquendo TTS is a rapidly growing family of expressive voices and personas from around the world.

Loquendo’s research and highly efficient methods of development enable the rapid release of new, high-quality voices and languages, as well as customized voices to suit your corporate profile.

To discover more about Loquendo’s latest TTS successes, visit our interactive TTS Demos at: www.loquendo.com.

Loquendo TTS Director

**Loquendo TTS Director** is a complete Java environment (also available in client-server configuration) for creating your own voice prompts. It gives developers complete control over their voice applications so they can really enhance the user experience. Text is written in the edit box and interactively refined through a “listen & edit” procedure, which allows “fine-tuning” for even better TTS performance. Its many features include:

- A repertoire of “expressive cues” – commonly used phrases, such as “How are you?” or “You’ve got to be kidding!” and paralinguistic events such as yawning, coughing and laughing - enable highly expressive pronunciation, creating extremely natural sounding speech.
- “Plug-in lexicons” – make possible the reading of specific types of text (e.g. SMS abbreviations, emails).
- Lexicons Manager – is the tool to create and edit lexicons.
- **Mixed Language Capabilities** – allows the reading of multilingual texts: it has a built-in language guesser that automatically identifies the language of any text so that, through phonetic mapping, any of Loquendo’s voices can pronounce any foreign word.
- **Audio Mixer** – gives you complete control over all audio sources (for music or other sounds there is a choice of sampling rates and coding): audio files can be mixed, looped, faded in and out, or synchronized with synthetic speech.
- **Voice Creator** – gives you the possibility to modify an existing voice and save it as a new one.
- **User-Driven Unit Selection Tool** – enables the user to perform an alternative acoustic unit selection from the speech database - so giving you the maximum flexibility for the smoothest pronunciation and intonation possible.
- **Reading Style** – allows prompt designers to activate/deactivate predefined reading styles.

**KEY TTS FEATURES:**

- Expressive TTS
- Mixed Language Capability: Phonetic Mapping, Language guesser
- Dynamic switching between multiple voices
- Pronunciation lexicon - for user definable pronunciation (acronyms, foreign names, etc.)
- Flexible voice control - for creating special effects, modifying speech rate, pitch and timbre
- Audio Mixer
- SMS and E-mail Preprocessing
- Customized voices - for extending corporate image and branding through unique voices
- Interactive SSML validation
Loquendo ASR gives integrators the freedom to create services that are user-friendly and as complex as they want them to be in terms of vocabulary size, interaction flexibility and number of languages. Loquendo ASR perfectly fits the requirements of each and every application scenario - however complex.

- **Broad Vocabulary & Flexible Recognition** – recognizes up to 1,000,000 words; supports isolated and continuous speech.
- **Highly Accurate Speech Recognition** – thanks to integration of neural networks and hidden Markov models, and detailed acoustic-phonetic units trained on large speech corpora.
- **Extended Standards Support** – optimized for VoiceXML applications; complete grammar standards support, both W3C SRGS 1.0 and SISR 1.0.
- **Highly Accurate Phonetic Transcribers** – specialized for each language (also used in acclaimed Loquendo TTS).

Loquendo ASR also provides:

- **A re-usable built-in grammar library** for each language (e.g. date, time, currency, phone numbers, etc.).
- **Phonetic segmentation**, which includes the phonetic representation and related time-stamps for each phoneme within a sentence. This is often a prerequisite, especially in avatar animation.

**The Benefits to You…**

**Simple Yet Powerful Technology…**

A complete set of **simple and powerful features** guarantees truly robust speech technology, enabling:

- Improved **barge-in capability** to guarantee high reactivity and robustness to noise and background speech.
- A new patented speech enhancement method for improved recognition performances in **noisy conditions**.
- A **flexible rejection mechanism** which identifies any linguistic expressions that are not acceptable within a specific domain.
- **Dialogue-flow management** which is achieved through confidence values provided for all the N-best hypotheses returned on a sentence-by-sentence & word-by-word basis.
- **Very effective Garbage rules definition** to match arbitrary spoken sequences not modeled by the grammar.

A sophisticated **Speech Assistant Toolkit** guarantees the rapid and efficient definition of Recognition Objects (ROs) and Recognition Packages, such as Grammar ROs and Language Modeling ROs. In “unpredictable” situations, ROs can be created, stored and deleted “on the fly”.

**Significant memory requirement reduction**: ROs can be both **permanent** (and therefore shared by all recognition channels) and **dynamic** (i.e. loaded run-time when required and discarded once they have been used).

Loquendo ASR also provides:

- **A sophisticated Speech Assistant Toolkit** guarantees the rapid and efficient definition of Recognition Objects (ROs) and Recognition Packages, such as Grammar ROs and Language Modeling ROs. In “unpredictable” situations, ROs can be created, stored and deleted “on the fly”.

**Loquendo ASR Tools**

Loquendo ASR provides users with a tool package that automatically analyzes data collected in the field to improve service performance, including:

- **Phonetic Learning** – which automatically analyzes application data to identify frequent formulations that have not been covered and additional pronunciation variants, to improve a speech recognition grammar.
- **Acoustic Model Adaptation** – further increases recognition performance by using audio material recorded in the field (environment, speaker, channel adaptation), where a vocal application is used in a particular context.
Loquendo MRCP Server

Loquendo MRCP Server – Profiles and Configurations

Loquendo MRCP Server provides flexible network configurations, which allow a range of possible integrations with the MRCP v1 and MRCP v2 profiles.

Loquendo MRCP Server can be configured as TTS-only, ASR-only, or both TTS and ASR. The MRCP v2 profile provides Recording and Speaker Verification functionalities.

In multiple server configurations, the Load Balancer guarantees the management of several Loquendo MRCP Servers by a single MRCP client.

Loquendo MRCP Server – Technical Specifications

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<tr>
<th>Key Features</th>
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<tr>
<td>• Software-only solution</td>
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<tr>
<td>• Support for all languages and voices, according to Loquendo TTS and Loquendo ASR technology</td>
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<tr>
<td>• Depending on capability of Loquendo technologies’: plays audio files or synthesized text, recognizes or records user speech</td>
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<tr>
<td>• Grammar can be pre-recorded or compiled from specific sources to create Recognition Objects</td>
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<tr>
<td>• Common lexicon for Loquendo ASR and Loquendo TTS</td>
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<td>• Server negotiation in multiple server configuration</td>
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<th>OA&amp;M</th>
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<td>SNMP Agent for software modules, Graphic Management console</td>
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<tr>
<th>Supported Languages</th>
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<tr>
<td>Norwegian, Swedish, Danish, Finnish, Australian English, U.S. and U.K. English, Russian, Mandarin Chinese (TTS only), French, Canadian French, American Spanish, Mexican, Chilean and Argentinian Spanish, Castilian, Catalan, Valencian, Galician, Brazilian, Portuguese, German, Dutch, Polish, Greek, Turkish, Italian, Arabic, Romanian*, Japanese*, Indian English (TTS only)* (* under development)</td>
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<th>OS Supported</th>
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<tr>
<td>• Microsoft Windows XP, Server 2003 (32bit and 64bit), Server 2008 (32bit and 64bit)</td>
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<tr>
<td>• Linux RHEL 3.5, 4.5 (32bit) and 5.1, 5.2, 5.3, 5.4, 5.5 (32bit and 64bit)</td>
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<tr>
<td>• Linux CentOS 5.1, 5.2, 5.3, 5.4 and 5.5 (32bit and 64bit)</td>
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<tr>
<td>• SUSE Linux 10 SP2 and SP3 (32bit and 64bit), SUSE Linux 11 (32bit and 64bit)</td>
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<th>Standard Interfaces</th>
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<tr>
<td>MRCP v1 (RFC 4463), MRCP v2, SNMP</td>
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<th>CPU Requirements</th>
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<tr>
<td>Intel Core 2 Quad 9300 @ 2.5 GHz – 4 GByte of RAM:</td>
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<tr>
<td>• TTS server: up to 230 channels</td>
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<td>• ASR server: up to 170 channels</td>
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<tr>
<td>• ASR + TTS server: up to 140 channels</td>
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For more detailed information see the Loquendo TTS and Loquendo ASR brochures.

To find out how Loquendo’s products can position your company for success, please visit www.loquendo.com.

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